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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,440	12/28/2000	Suk-Won Choi	8733.373.00	6061
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MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006				
			EXAMINER DUONG, THOI V	
			ART UNIT 2871	PAPER NUMBER

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/749,440

Applicant(s)

CHOI ET AL.

Examiner

Thoi V Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-18 and 20-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-18 and 20-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 26, 2004 has been entered.

Accordingly, claims 2 and 14 were amended, claims 11 and 19 were cancelled, and new claims 23-25 were added. Currently, claims 1-10, 12-18 and 20-25 are pending in this application.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 2 recites the limitation "the temperature" in line 1. There is insufficient antecedent basis for this limitation in the claim.

4. Claim 4 recites the limitation "the smectic phase" in line 1. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 5 recites the limitation "the smectic phase" in line 1. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 16 recites the limitation "the smectic phase" in line 2. There is insufficient antecedent basis for this limitation in the claim.

7. Claim 17 recites the limitation "the smectic phase" in line 2. There is insufficient antecedent basis for this limitation in the claim.

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-10, 12-18 and 20-25 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not disclose the composition of the ferroelectric liquid crystal (FLC) material which still maintains the smectic phase when the liquid crystal panel is cooled to -20 degrees so as to produce monostable alignment of ferroelectric liquid crystal, then substantially heated to room temperature. This composition of the FLC material is essential to make and/or use the claimed invention.

### ***Response to Arguments***

10. Applicant's arguments filed 07/09/2003 have been fully considered but they are not persuasive.

Applicant argued that a *prima facie* case of nonenablement under 35 USC & 112 1<sup>st</sup> paragraph has not been established. The Examiner disagrees with the Applicant's remarks because the Examiner has established a reasonable basis to question the enablement provided for the claimed invention in the last office action. That is "the composition of the ferroelectric liquid crystal (FLC) material which still maintains the

smectic phase when the liquid crystal panel is cooled to -20 degrees to produce monostable alignment of ferroelectric liquid crystal, then substantially heated to room temperature." This composition of the FLC material, which is essential to make and/or use the claimed invention, is not disclosed by Applicant in the specification. As in "Novel Ferroelectric Liquid Crystal Mode for Active Matrix Liquid Crystal Display using Cholesteric-Chiral Smectic C phase Transition Material" (Applicant's IDS), Asao et al. discloses that the FLC composition used in the experiment was FLC-A, which consisted of hydrocarbon compounds having the phenyl-pyrimidine core. According to the phase sequences, the FLC-A became crystallized at -7.2 degrees C (see Experiments).

Applicant also argued that it cannot be reasonably presumed that all FLC material has crystallization temperature of -7.2 degrees C simply because of the teaching of Asao et al. and that crystalline phase transitions of various types of FLC occurs over a range of well documented temperatures. It should be noted that the reference of Asao et al. is used as specific evidence for disclosing the composition of FLC in the experiment. And because various types of FLC have crystalline phase transitions occurring over a range of well documented temperatures, the Examiner would like to know what type of FLC which still maintains the smectic phase when cooled to -20 degrees C. This information is missing in the specification.

Applicant argued that numerous compositions of FLC material exhibiting the characteristics defined in the specification (e.g., that maintain a smectic phase when cooled to -20 degrees C) exist and well known to those of ordinary skill in the art. However, the Examiner has still not known what type of FLC material exhibiting those

characteristics which are well known to those of ordinary skill in the art. This information is missing in the specification.

Further, Applicant argued that McDonnell et al. discloses an FLC material has a crystalline-smectic phase transition temperature of -20 degrees C and McDonnell et al. was cited as an illustrative example that the properties of FLC material that are alleged by the Examiner to find no support in the specification are known by those skilled in the art. In fact, McDonnell et al. at least discloses that the FLC material used in the example is SCE8 (col. 10, lines 23-35). In addition, the specification discloses four different FLCs which have the properties "cooling at -20 degrees C where the FLC still maintains the smectic phase." Are these four FLCs well known that one of ordinary skill in the art would readily recognize these four FLCs without undue experimentation? Therefore, the Examiner would like to know what type of FLC material exhibiting those properties that are known by those skilled in the art. This information is missing in the specification.


Finally, claims 1, 10 and 18 recite the limitations "cooling the liquid crystal panel so as to produce monostable alignment of the ferroelectric liquid crystal" and "cooling the liquid crystal layer to form a monostable alignment of the liquid crystal molecules." The cooling temperature of -20 degrees C as well as the smectic phase of the instant invention are found in the dependent claims 2, 4, 5, 14, 16, 17 and 20-22.


### **Conclusion**

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30

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pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong   
05/05/2004

  
DUNG T. NGUYEN  
PRIMARY EXAMINER